

II. Amendments to the Claims

This listing of claims replaces without prejudice all prior versions, and listings, of claims in the application:

Listing of Claims:

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Claims 1-23 (Cancelled)

24. (Newly Added) An unexpanded stent comprising:
a tubular wall having a series of undulating circumferential portions;
the tubular wall also having a plurality of longitudinal portions connecting said series of undulating circumferential portions to form a porous, cylindrical surface; and

a flexure region within each longitudinal portion, said flexure region, in two dimensions, being (i) non-sinusoidal, (ii) isolated with respect to at least one adjacent circumferential portion, and (iii) arcuate.

25. (Newly Added) The stent of claim 24, wherein one or more of said plurality of longitudinal portions includes

multiple flexure regions within the same longitudinal portion.

26. (Newly Added) The stent of claim 25, wherein said multiple flexure regions within the same longitudinal portion have a same shape.

27. (Newly Added) The stent of claim 25, wherein said multiple flexure regions within the same longitudinal portion have a different shape.

32 28. (Newly Added) The stent of claim 25, wherein said multiple flexure regions within the same longitudinal portion have a first lateral section and a second lateral section, and wherein the first lateral section and the second lateral section are present on the same side of the longitudinal portion.

29. (Newly Added) The stent of claim 25, wherein said multiple flexure regions within the same longitudinal portion have a first lateral section and a second lateral section, and wherein the first lateral section and the second lateral section are present on different sides of the longitudinal portion.

30. (Newly Added) The stent defined in claim 24, wherein a relative flexibility of the stent is variable in

accordance with a thickness of at least one of the plurality of radially-expandable circumferential struts varying in the range of from about 0.0015 to about 0.0045 inches.

31. (Newly Added) The stent defined in claim 24, further comprising a medicinal coating disposed thereon.

32. (Newly Added) A stent system comprising a balloon catheter having an expandable portion, the expandable portion having disposed thereon the stent defined in claim 31.

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33. (Newly Added) The stent defined in claim 25, wherein said multiple flexure regions within the same longitudinal portion have substantially the same shape and differing size.

34. (Newly Added) The stent defined in claim 25, wherein said multiple flexure regions within the same longitudinal portion have differing shape and size.

35. (Newly Added) The stent defined in claim 24, wherein the porous, cylindrical surface comprises a repeating pattern comprised of a polygon having a pair of side walls substantially parallel to a stent longitudinal axis, and wherein

the flexure region is disposed in each of the side walls.

36. (Newly Added) The stent defined in claim 24, wherein the longitudinal portions are aligned in a spaced relationship parallel to a stent longitudinal axis.

37. (Newly Added) The stent defined in claim 24, wherein the longitudinal portions are aligned in an interconnected relationship parallel to a stent longitudinal axis.

B2 38. (Newly Added) The stent defined in claim 24, wherein the stent is constructed of stainless steel.

39. (Newly Added) The stent defined in claim 24, wherein said flexure region, in two dimensions, has a width less than a width of said undulating circumferential portions.

40. (Newly Added) The stent defined in claim 24, wherein said flexure region, in two dimensions, being isolated with respect to a pair of adjacent circumferential portions.

41. (Newly Added) The stent defined in claim 24, wherein the stent is constructed of a self-expanding material

which expands at a temperature of greater than about 30°C.

42. (Newly Added) The stent defined in claim 41, wherein the self-expanding material expands at a temperature of in the range of from about 30° to about 40°C.

43. (Newly Added) The stent defined in claim 24, wherein adjacent undulating circumferential portions have substantially the same profile.

44. (Newly Added) The stent defined in claim 24, wherein adjacent undulating circumferential portions have substantially different profiles.

45. (Newly Added) An unexpanded stent comprising:
a tubular wall having a series of undulating circumferential portions;

the tubular wall also having a plurality of longitudinal portions connecting said series of undulating circumferential portions to form a porous, cylindrical surface;
and

flexure structure that provides lateral flexibility to said stent and is disposed within each of said plurality of longitudinal portions, each said flexure structure, in two

dimensions, being (i) non-sinusoidal, (ii) isolated with respect to adjacent circumferential portions, and (iii) arcuate.

46. (Newly Added) The stent of claim 45, wherein one or more of said plurality of longitudinal portions includes multiple flexure structures within the same longitudinal portion.

47. (Newly Added) The stent of claim 46, wherein said multiple flexure structures within the same longitudinal portion have a same shape.

48. (Newly Added) The stent of claim 46, wherein said multiple flexure structures within the same longitudinal portion have a different shape.

49. (Newly Added) The stent of claim 46, wherein said multiple flexure structures within the same longitudinal portion have a first lateral section and a second lateral section, and wherein the first lateral section and the second lateral section are present on the same side of the longitudinal portion.

50. (Newly Added) The stent of claim 46, wherein said multiple flexure structures within the same longitudinal portion

have a first lateral section and a second lateral section, and wherein the first lateral section and the second lateral section are present on different sides of the longitudinal portion.

51. (Newly Added) The stent defined in claim 45, wherein a relative flexibility of the stent is variable in accordance with a thickness of at least one of the plurality of radially-expandable circumferential struts varying in the range of from about 0.0015 to about 0.0045 inches.

52. (Newly Added) The stent defined in claim 45, further comprising a medicinal coating disposed thereon.

53. (Newly Added) A stent system comprising a balloon catheter having an expandable portion, the expandable portion having disposed thereon the stent defined in claim 52.

54. (Newly Added) The stent defined in claim 46, wherein said multiple flexure structures within the same longitudinal portion have substantially the same shape and differing size.

55. (Newly Added) The stent defined in claim 46, wherein said multiple flexure structures within the same

longitudinal portion have differing shape and size.

56. (Newly Added) The stent defined in claim 45, wherein the porous, cylindrical surface comprises a repeating pattern comprised of a polygon having a pair of side walls substantially parallel to a stent longitudinal axis, and wherein the flexure structures are disposed in each of the side walls.

57. (Newly Added) The stent defined in claim 45, wherein the longitudinal portions are aligned in a spaced relationship parallel to a stent longitudinal axis.

58. (Newly Added) The stent defined in claim 45, wherein the longitudinal portions are aligned in an interconnected relationship parallel to a stent longitudinal axis.

59. (Newly Added) The stent defined in claim 45, wherein the stent is constructed of stainless steel.

60. (Newly Added) The stent defined in claim 45, wherein the stent is constructed of a self-expanding material.

61. (Newly Added) The stent defined in claim 60,

wherein the self-expanding material comprises nitinol.

62. (Newly Added) The stent defined in claim 60, wherein the self-expanding material expands at a temperature of greater than about 30°C.

63. (Newly Added) The stent defined in claim 45, wherein said flexure structure, in two dimensions, has a width less than a width of said undulating circumferential portions.

64. (Newly Added) The stent defined in claim 45, wherein adjacent undulating circumferential portions have substantially the same profile.

65. (Newly Added) The stent defined in claim 45, wherein adjacent undulating circumferential portions have substantially different profiles.

66. (Newly Added) A stent comprising:
a series of undulating circumferential struts;
a plurality of longitudinal struts connecting said series of undulating circumferential struts to form a porous, cylindrical surface; and
flexure elements within said plurality of longitudinal

struts, said plurality of longitudinal struts being arranged around said cylindrical surface such that the flexure elements in adjacent longitudinal portions are located at different distances from said circumferential struts.

67. (Newly Added) The stent of claim 66, wherein one or more of said plurality of longitudinal portions includes multiple flexure elements within the same longitudinal portion.

68. (Newly Added) The stent of claim 67, wherein all said multiple flexure elements within the same longitudinal portion have a same shape.

69. (Newly Added) The stent of claim 67, wherein all said multiple flexure elements within the same longitudinal portion have a different shape.

70. (Newly Added) The stent of claim 67, wherein all said multiple flexure elements within the same longitudinal portion have a first lateral section and a second lateral section, and wherein the first lateral section and the second lateral section are present on the same side of the longitudinal portion.

71. (Newly Added) The stent of claim 67, wherein all said multiple flexure elements within the same longitudinal portion have a first lateral section and a second lateral section, and wherein the first lateral section and the second lateral section are present on different sides of the longitudinal portion.

72. (Newly Added) The stent defined in claim 66, wherein a relative flexibility of the stent is variable in accordance with a thickness of at least one of the plurality of radially-expandable circumferential struts varying in the range of from about 0.0015 to about 0.0045 inches.

73. (Newly Added) The stent defined in claim 66, further comprising a medicinal coating disposed thereon.

74. (Newly Added) A stent system comprising a balloon catheter having an expandable portion, the expandable portion having disposed thereon the stent defined in claim 73.

75. (Newly Added) The stent defined in claim 66, wherein said multiple flexure elements within the same longitudinal strut have substantially the same shape and differing size.

76. (Newly Added) The stent defined in claim 66, wherein said multiple flexure elements within the same longitudinal strut have differing shape and size.

77. (Newly Added) The stent defined in claim 66, wherein the porous, cylindrical surface comprises a repeating pattern comprised of a polygon having a pair of side walls substantially parallel to a stent longitudinal axis, and wherein the flexure elements are disposed in each of the side walls.

78. (Newly Added) The stent defined in claim 66, wherein the longitudinal struts are aligned in a spaced relationship parallel to a stent longitudinal axis.

79. (Newly Added) The stent defined in claim 66, wherein the longitudinal struts are aligned in an interconnected relationship parallel to a stent longitudinal axis.

80. (Newly Added) The stent defined in claim 66, wherein the stent is constructed of stainless steel.

81. (Newly Added) The stent defined in claim 66, wherein the stent is constructed of a self-expanding material.

82. (Newly Added) The stent defined in claim 81, wherein the self-expanding material comprises nitinol.

83. (Newly Added) The stent defined in claim 81, wherein the self-expanding material expands at a temperature of greater than about 30°C.

84. (Newly Added) The stent defined in claim 66, wherein said flexure elements, in two dimensions, have a width less than a width of said undulating circumferential struts.

85. (Newly Added) The stent defined in claim 66, wherein adjacent undulating circumferential struts have substantially the same profile.

86. (Newly Added) The stent defined in claim 66, wherein adjacent undulating circumferential struts have substantially different profiles.

87. (Newly Added) A stent comprising:
a series of undulating circumferential members;
a plurality of longitudinal members connecting said series of undulating circumferential members to form a porous,

cylindrical surface; and

flexure members within said plurality of longitudinal members, the flexure members of adjacent longitudinal members having different shapes in an unbent form of the stent.

88. (Newly Added) The stent of claim 87, wherein one or more of said plurality of longitudinal members includes multiple flexure members within the same longitudinal member.

89. (Newly Added) The stent of claim 88, wherein said multiple flexure members within the same longitudinal member have a same shape.

90. (Newly Added) The stent of claim 88, wherein said multiple flexure members within the same longitudinal member have a different shape.

91. (Newly Added) The stent of claim 88, wherein said multiple flexure members within the same longitudinal member have a first lateral section and a second lateral section, and wherein the first lateral section and the second lateral section are present on the same side of the longitudinal member.

92. (Newly Added) The stent of claim 88, wherein said

multiple flexure members within the same longitudinal member have a first lateral section and a second lateral section, and wherein the first lateral section and the second lateral section are present on different sides of the longitudinal member.

93. (Newly Added) The stent defined in claim 87, wherein a relative flexibility of the stent is variable in accordance with a thickness of at least one of the plurality of radially-expandable circumferential members varying in the range of from about 0.0015 to about 0.0045 inches.

94. (Newly Added) The stent defined in claim 87, further comprising a medicinal coating disposed thereon.

95. (Newly Added) A stent system comprising a balloon catheter having an expandable portion, the expandable portion having disposed thereon the stent defined in claim 94.

96. (Newly Added) The stent defined in claim 88, wherein said multiple flexure members within the same longitudinal member have substantially the same shape and differing size.

97. (Newly Added) The stent defined in claim 88,

wherein said multiple flexure members within the same longitudinal member have differing shape and size.

98. (Newly Added) The stent defined in claim 87, wherein the porous, cylindrical surface comprises a repeating pattern comprised of a polygon having a pair of side walls substantially parallel to a stent longitudinal axis, and wherein the flexure members are disposed in each of the side walls.

99. (Newly Added) The stent defined in claim 87, wherein the longitudinal members are aligned in a spaced relationship parallel to a stent longitudinal axis.

100. (Newly Added) The stent defined in claim 87, wherein the longitudinal members are aligned in an interconnected relationship parallel to a stent longitudinal axis.

101. (Newly Added) The stent defined in claim 87, wherein the stent is constructed of stainless steel.

102. (Newly Added) The stent defined in claim 87, wherein the stent is constructed of a self-expanding material.

103. (Newly Added) The stent defined in claim 102, wherein the self-expanding material comprises nitinol.

104. (Newly Added) The stent defined in claim 102, wherein the self-expanding material expands at a temperature of greater than about 30°C.

105. (Newly Added) The stent defined in claim 87, wherein said flexure members, in two dimensions, having a width less than a width of said undulating circumferential members.

106. (Newly Added) The stent defined in claim 87, wherein adjacent undulating circumferential members have substantially the same profile.

107. (Newly Added) The stent defined in claim 87, wherein adjacent undulating circumferential members have substantially different profiles.

108. (Newly Added) An expandable stent comprising:
a series of undulating circumferential portions;
a plurality of longitudinal portions connecting said series of undulating circumferential portions to form a porous, cylindrical surface; and

flexure structure that confers lateral flexibility to said unexpanded stent, said flexure structure being located within said plurality of longitudinal portions, said plurality of longitudinal portions being arranged around said cylindrical surface such that the flexure structures in adjacent longitudinal portions are located at different distances from said circumferential portions, and wherein the flexure structures of adjacent longitudinal portions have different shapes.

109. (Newly Added) The stent of claim 108, wherein one or more of said plurality of longitudinal portions includes multiple flexure structures within the same longitudinal portion.

110. (Newly Added) The stent of claim 109, wherein said multiple flexure structures within the same longitudinal portion have a same shape.

111. (Newly Added) The stent of claim 109, wherein said multiple flexure structures within the same longitudinal portion have a different shape.

112. (Newly Added) The stent of claim 109, wherein

said multiple flexure structures within the same longitudinal portion have a first lateral section and a second lateral section, and wherein the first lateral section and the second lateral are present on the same side of the longitudinal portion.

113. (Newly Added) The stent of claim 109, wherein said multiple flexure structures within the same longitudinal portion have a first lateral section and a second lateral section, and wherein the first lateral section and the second lateral section are present on different sides of the longitudinal portion.

114. (Newly Added) The stent defined in claim 108, wherein a relative flexibility of the stent is variable in accordance with a thickness of at least one of the plurality of radially-expandable circumferential struts varying in the range of from about 0.0015 to about 0.0045 inches.

115. (Newly Added) The stent defined in claim 108, further comprising a medicinal coating disposed thereon.

116. (Newly Added) A stent system comprising a balloon

catheter having an expandable portion, the expandable portion having disposed thereon the stent defined in claim 115.

117. (Newly Added) The stent defined in claim 109, wherein said multiple flexure structures within the same longitudinal portion have substantially the same shape and differing size.

118. (Newly Added) The stent defined in claim 109, wherein said multiple flexure structures within the same longitudinal portion have differing shape and size.

119. (Newly Added) The stent defined in claim 108, wherein the porous, cylindrical surface comprises a repeating pattern comprised of a polygon having a pair of side walls substantially parallel to a stent longitudinal axis, and wherein the flexure structures are disposed in each of the side walls.

120. (Newly Added) The stent defined in claim 108, wherein the longitudinal portions are aligned in a spaced relationship parallel to a stent longitudinal axis.

121. (Newly Added) The stent defined in claim 108, wherein the longitudinal portions are aligned in an

interconnected relationship parallel to a stent longitudinal axis.

122. (Newly Added) The stent defined in claim 108, wherein the stent is constructed of stainless steel.

123. (Newly Added) The stent defined in claim 108, wherein the stent is constructed of a self-expanding material.

124. (Newly Added) The stent defined in claim 123, wherein the self-expanding material comprises nitinol.

125. (Newly Added) The stent defined in claim 123, wherein the self-expanding material expands at a temperature of greater than about 30°C.

126. (Newly Added) The stent defined in claim 108, wherein said flexure structure, in two dimensions, has a width less than a width of said undulating circumferential portions.

127. (Newly Added) The stent defined in claim 108, wherein adjacent undulating circumferential portions have substantially the same profile.

128. (Newly Added) The stent defined in claim 108,
wherein adjacent undulating circumferential portions have
substantially different profiles.

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